U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Central High School St. Croix Air Investigation - Removal Polrep
Initial Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region II

Subject: **POLREP #1**
Initial, Deployment and Site Assessment
Central High School St. Croix Air Investigation
A23S
Christiansted, VI
Latitude: 17.7259200 Longitude: -64.7812700

To:
From: Geoffrey Garrison, Cris Donofrio, David Rosoff, OSCs
Date: 4/13/2014
Reporting Period: 3/18 - 4/05/2014

1. Introduction

1.1 Background

Site Number:	A23S	**Contract Number:**	
D.O. Number:		**Action Memo Date:**	
Response Authority:	CERCLA	**Response Type:**	
Response Lead:		**Incident Category:**	Removal Assessment
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:		**Start Date:**	
Demob Date:		**Completion Date:**	
CERCLIS ID:		**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

Release of noxious odors from an unknown source that affected students, faculty and staff at Central High School on March 18, 2014.

1.1.2 Site Description

The site is comprised of a public high school consisting of 13 to 18 buildings (depending on how some structures are included in th count) on 42 acres of Property. Central High School (CHS), commonly referred to as "Central High" or "Central," is the largest high school on St. Croix with an enrollment of over 1,200 students grades 9 -12 along with 120+ staff. Central High School is also home to the Ronald Charles Gymnasium.

The school is operated by the St. Croix School District of the VI Department of Education (DOE). The original structures including the sewage system were built in 1967, although modifications and additions were later added; the exact extent and date of the modifications from the original design are unknown.

To the WSW of CHS is the Curriculum Center and the Court House, both bordering on Centerline Road. To the SW of CHS is the Head Start School and the Herbert Grigg Home for the Aged. All of these properties, with the exception of the courthouse, have a gravity feed sewer system with lines that discharge to the manhole at Curriculum Center, which is also the discharge point for the force main from the Barren Spot pump station.

1.1.2.1 Location

Central High School is located on the Queen Mary Highway (Centerline Road) where it intersects with Road 663. This location is near the center of the island, approximately halfway between the main cities of Christiansted and Fredericksted, and north of the Diageo and Hovensa facilities. Kingshill Cemetery is in close proximity.

1.1.2.2 Description of Threat

Without proper assessment of potential sources for the March 18th Incident, the school and surrounding populated areas could be subject to another release of noxious odors and the related health effects unless the source is identified and mitigated.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

See attached reports in the document section for Single Point Monitor (SPM) and hand-held instrumentation air monitoring results. Sampling results are pending validation prior to public release.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

On the morning of March 18, 2014, students and faculty at the Central High School in Kingshill, St Croix, were sickened by noxious odors emanating from an unknown source. Thirty five students and at least one teacher sought treatment at Juan Luis Hospital. Symptoms included, fainting, vomiting, rapid breathing and heart rate, dizziness, headache and altered mental status. At approximately 12:15 pm the school was closed and has not been reopened since. On March 19, 2014, the Virgin Islands Department of Planning and Natural Resources (DPNR) requested technical assistance from EPA's removal program to determine the source of the release that affected the occupants of Central High School on March18, 2014. The verbal request, presented to EPA by DPNR on March 19, was followed by a written request on March 20, 2014. Specifically, DPNR asked EPA to support with air monitoring and sampling capabilities. EPA's removal program in turn requested assistance from EPA's Environmental Response Team (ERT) to accomplish this task.

2.1.2 Response Actions to Date

March 20, 2014: the first EPA On-Scene Coordinator (OSC Garrison) arrived on site in St. Croix to begin coordination for follow-on deployment of the EPA assessemt team.

March 21, 2014: A six person DPNR team and an EPA OSC conducted perimeter monitoring and a site visit to HOVENSA from 0230 thru 0530 hours this morning. The time was chosen based on adjacent community feedback that "hydrocarbon" odors are very strong around 0300 AM. Summary of site visit observations as follows:

HOVENSA had not yet resumed manual tank cleaning, however; they continue mechanical cleaning on at least two tanks at a time. Tanks 7510 and 7418 were being pumped during the visit. They described this mechanical work as the process by which residuals (tank bottoms) are circulated in the tank and then pumped out of the tank to the TDU (thermal disorption unit) to a centrifuge to separate the sludge. From there one stream goes to the recovered oil tank, and the other to the dryer where the resulting ash is sacked and shipped to the states for disposal. This operation runs 24/7 with an in-house capability to pump out up to three tanks at a time. They had so far finished cleaning 189 tanks with approximately 39 remaining.

The air monitoring with the MultiRae Pro did not show readings above 500 ppb VOC inside the facility and H2S was non-detect. The perimeter VOC reading with the MultiRAE was background; no odors were detected.

From 1000 to 1400 hours, DPNR and OSC Garrison responded to three additional odor complaints in the vicinity of CHS. The most serious was at the Herbert Brigg Nursing home where eight kitchen staff were affected by the odors and complaining of burning sensations and itchy skin. Two of these workers went to the hospital for evaluation. The facility resumed operation once the odors subsided. No nursing residents were affected. MultiRAE readings showed potential problem areas with a propane tank and a 5000 gal double wall diesel tank which was referred to facility management for follow up. The other odor complaints involved the King's Hill Head Start (which is in the same general area as CHS and the Nursing home) and at the Home Depot.

The Environmental Response Team (ERT) shipped the equipment necessary for monitoring and sampling. Tracking numbers were provided to Government House in order to assist in expediting customs clearance to allow for immediate use.

March 22, 2014: The second OSC (Rosoff) arrived on St. Croix.

March 23, 2014: EPA OSCs (Rosoff/Garrison), DPNR and the National Guard CST performed an initial site entry into the CHS campus. Entry included air monitoring with handheld devices including the MultiRae Pro and the TVA 1000. No unusual levels of H2S or VOCs were detected on campus. EPA and CST also performed air monitoring associated with the VIWMA sewer system along Centerline Road. Extremely elevated levels of H2S were detected associated with manholes at the Curriculum Center and the Territorial Courthouse west of and downstream (with regards to the sewer system) of the CHS. The third OSC (Donofrio) and ERT (Singhvi) arrived on island late today.

March 24, 2014: EPA's air sampling equipment arrived. However, due to the late arrival of the equipment, sampling was postponed until tomorrow. In the morning EPA met with DPNR and other VI agencies in the DPNR conference room at Mars Hill, Fredericksted to discuss yesterday's findings and plan the future investigation activities. In the afternoon EPA participated in a physical survey and aboveground inspection of the sewer collection system at the CHS campus. This survey was conducted with the assistance of WMA personnel who performed dye testing, and included the surrounding areas of the Courthouse, Herbert Griggs and the Head Start facilities. ERT began monitoring with the Jerome J605 Hydrogen Sulfide Analyzer (ppb range) to evaluate the CHS sewer system and the ambient conditions along the VIWMA sewer lines along Centerline Road.

March 25, 2014: EPA began a program of air monitoring and sampling at Central High School and at three potential sources of a gas/vapor that could have produced the effects that occurred at the school on March 18th: the VI WMA sewer system on Centerline Road, Diageo and Hovensa. ERT collected seven grab samples using 6-liter SUMMA canisters to sample for VOCs and reduced sulfur compounds. Six 24-hour SUMMA canisters were also deployed in various locations at CHS, the Courthouse and Curriculum Center (see the ERT report for details) for the same parameters .

EPA and DPNR personnel met with WMA at the Barren Spot Lift Station to gain an understanding of the workings of the force main system. EPA conducted hand-held air monitoring and collected a grab air sample for lab analysis (reduced sulfur gases and VOCs). Continuous air monitoring was also conducted for low level (2 to 90 ppb) hydrogen sulfide using Honyewell Single Point Monitors (SPMs) at locations identified as Manholes #2, #3 and #5 on the school property and one at the manhole in front of the Courthouse building. During the evening, EPA and the other cooperating agencies briefed DPNR Commissioner Alicia Barnes on the monitoring and sampling activities to date and the planned investigation activities.

March 26, 2014: EPA/DPNR visited Diageo to conduct air monitoring with hand-held instrumentation (H2S and VOCs) and to plan for VOC, reduced sulfur and aldehyde/ketone sampling scheduled for 3/27. At the request of DPNR, Diageo's operations were shut down on the 26th and 27th, so these air mointoring and sampling results will serve as a "baseline" to represent conditions when the facility is not in operation (i.e., distilling).

ERT SERAS recoverded the 24-hour SUMMA samples deployed yesterday at the CHS, the Curriculum Center, and the Courthouse for shipment to the laboratory. ERT SERAS also downloaded data from the 5 SPM datalogers (for H2S). During the afternoon, EPA and DPNR toured the Hovensa facility and took 4 SUMMA grab samples at locations where operations have been occuring recently (mostly tank cleaning and wastewater treatment areas). Like Diageo, Hovensa activities were curtailed based on a DPNR request, so these sampling results will also serve as a "baseline" to be used for comparison with

data to be collected during facility operations.

Late in the afternoon, VIWMA began cleaning the sewer lines and manholes near the Curriculum Center and the Courthouse. Very high levels of H2S were encountered at the time (greater than 200 ppm; the upper limit for the EPA MultiRAE Pro).

March 27, 2014: VIWMA continued cleaning and flushing the sewer lines on Centerline Road. Thick crystalline deposits of sulfur were observed being pressure washed from the manhole walls. High levels of H2S were detected in some of the manholes, especially when the force main was pumping. The Territorial Court was closed at this time due to the off-gassing H2S.

EPA was asked to participate in a meeting between DPNR and VIWMA today . VIWMA provided an update on their activities. DPNR and EPA updated VIWMA on the data collected to date. During the afternoon, EPA placed the 24-hour SUMMA canisters (for VOCS/reduced sulfur compounds) and air sampling pumps (for adehydes/ketones via TO-11) for baseline sampling at Diageo. Five locations throughout the Diageo faclity were selected along with a donwind sample at the Herbert Grigg Home.

At 1600 hours, we briefed the DPNR Commissioner on EPA findings and observations to date. At 1830 hours EPA/DPNR provided a summary briefing to the Governor and Government House personnel.

March 28, 2014: EPA OSCs held a morning telephone conference call with a highly experienced sanitary engineer from New Jersey. This call assisted the OSCs in understanding the causes of H2S problems found in the VIWMA sewer system. In addition, EPA procured the services of a sanitary enigneer, Brad Winkler from Weston Solutions, through the START contract. Mr Winkler will provide official technical consultation in regards to the sewer system. His arrival in St Croix was scheduled for March 30, 2014. In the afternoon, ERT picked up the "baseline" Diageo samples and shipped them to the lab for analysis. ERT SERAS continued to download SPM H2S data from our five established locations. EPA also observed WMA continue the sewer line flushing operations at CHS; no significant blockages were found, although one area in the courtyard (a potential buried manhole) needs further investigation. The VI Governor held a press conference covered by four radio stations which included updates by DPNR, VIWMA, the CST and VITEMA. In the evening EPA OSCs tabulated the hand held instrument and SPM data for reporting purposes.

March 29, 2014: EPA and VIWMA representatives took measurements at the Barren Spot Pump Station wet well to determine capacity, pump cycle times and water levels needed to determine flow velocities in the force main. ERT SERAS downloaded SPM H2S data.

March 30, 2014: The Weston Solutions sanitary engineer, Brad Winkler, arrived on island on Sunday evening. EPA OSCs and ERT continued summarizing and analyzing SPM and hand-held air monitoring data.

March 31, 2014: The VI Government coordinated logistics to allow CHS staff and students to visit the campus to pick up essential supplies and personal items left during the March 18 evacuation. CST, DPNR and EPA personnel conducted air monitoring prior to and for the duration of the students' authorized access to ensure their safety. Air monitoring was conducted using a combination of an AreaRAE suite, hand-held instruments and single point monitors. No unusual readings were observed. The CHS principal allowed EPA to interview several teachers and staff that were present at the school and witnessed the March 18th incident. Those interveiwed provided details and timelines on how the events unfolded that day. When presented with low concentration H2S calibration gas, most of the staff recognized the rotten egg odor of H2sa the odor which was present during March 18, 2014.

At the request of the Honorable Judge Lewis, EPA, DPNR and CST personnel conducted air monitoring at the Courthouse which was still closed at the time. The Jerome indicated H2S readings near the upper level of reliability (50 ppb) in two rooms. The CST collected HapSite (GC/MS) readings which will be compared to sewer gas readings previously collected directly from the Courthouse manhole.

EPA initiated air sampling for VOCs and reduced sulfur compounds at Hovensa in the work areas where tank cleaning was being performed and where emissions were expected to be the greatest. One SUMMA grab sample and five 24-hour SUMMA canisters were deployed. For the sample period, two 24-hour SUMMAS were deployed at CHS.

April 1, 2014: the EPA OSCs escorted the Weston sanitary engineer to survey the manholes and lines

at CHS and the areas adjacent to the Courthouse in order to acquaint him with the sewer system. The team also surveyed the Barren Spot pump station along with VIWMA during which potential remedies were discussed. The information gleaned from the surveys will assist our engineer in evaluating the potential force main contribution to H2S generation and isolate problem areas.

Air sampling was conducted at Diageo using five 24-hour SUMMA cannisters for VOCS/reduced sulfur compounds and five SKC air sampling pumps for aldehydes/ketones (TO-11) . Two SKC pumps and two 24hour SUMMAS were also placed at CHS; one sampling set was placed at the Herbert Grigg facility property. Diageo was fully operational during the sampling period which will allow for comparison to the baseline samples taken prior. The Hovensa samples that were deployed the day before were picked up in the afternoon as were the two samples concurrently taken at CHS. All samples were shipped to the lab for analysis.

The equipment needed for the smoke test arrived. At 1530 hours, EPA briefed Commissioner Barnes regarding the status of recent activities and observations.

April 2, 2014: Much of the day was spent on two activities that yielded mixed results: 1) A sewer water sampling event planned for morning was temporarily postponed in order to coordinate proper access to the Barren Spot pump station wet well. 2) The smoke test planned for CHS was incomplete because the proper draw could not be established in the sewer system using the limited equipment that is currently available. Only the western third of the system could be evaluated. Additional equipment (suction fans) were obtained to continue the smoke test on April 3rd.

ERT collected the Diageo samples (5 at Diageo and 3 offsite at CHS and Herbert Grigg) and shipped them to the lab for analysis. ERT Raj Singhvi demobilized today. The ERT SERAS contractor remains on-site to complete sampling and monitoring activities and follow through with demobiliztion over the next few days.

April 3, 2014: EPA completed wastewater sampling at the Barren Spot Wet Well and at a downstream Manhole (MH 10) located west of the Courthouse near the Goat Patch. Samples were shipped and will be analyzed for VOCs, BNAs, pesticides, sulfides and sulfates.

EPA and Weston also performed extensive dye testing at CHS to confirm the flow path of the on site sewer system. In addition, EPA and Weston performed the second phase of the smoke testing ooperation which revealed multiple venting pathways for sewer gas. Pathways included improperly sealed cleanouts, old manholes thought to be disconnected and storm sewers supposedly independent from the sanitary sewer. These locations provide several potential pathways from which H2S could have escaped under the right conditions whcih may have existed during the event on March 18th; especially in the courtyard area.

At 11:15, EPA/DPNR briefed the Governor's staff . A senate hearing has been scheduled for April 4th at 11:00 hrs to discuss the issues surrounding the closure of CHS.

Later in the afternoon, EPA/DPNR conducted a technical meeting with VIWMA staff. During the meeting EPA presented our approach to the investigation, the data and information collected to date, and our recommendations. The Weston Engineer, Brad Winkler, assisted in presenting recommendations for sewer system modifications and repairs aimed at reducing the H2S problem. The meeting went well and served to wrap up two weeks of collaborative effort.

As of today the investigation is coming to an end. OSC Garrison demobed temporarily and will return on Monday, April 7, 2014 to install the Odalog in Manhole 5 on the CHS campus. The Odalog will be used to monitor H2S levels in this manhole for approximately 2 weeks; longer if needed. Upon his return, Garrison will also assist with air monitoring if needed.

April 4, 2014: OSC Rosoff was deployed to St. Thomas to assist in the investigation of drinking water complaints.
OSC Donofrio remains in St. Croix to return equipment borrowed from VIWMA, complete the demobilization for EPA equipment, and assist DPNR with investigation-related information if needed for the Senate hearings scheduled for today.

April 5, 2014: OSCs Donofrio and Rosoff demobilized along with the remaining ERT SERAS contractors. Work will continue off-site to evaluate sampling and monitoring results and to develop final

reports. The CHS remains closed until all appropriate corrective actions can be implemented and the VI Government has time to evaluate the results of the EPA investigation and the effectiveness of corrective actions being implemented.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

The investigation into potential PRPs continues, results from the air sampling at different locations is pending.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

2.2.1 Anticipated Activities

Validate and distribute sampling data. Discuss findings and recomendations with all participating agencies. Prepare and distribute final site assessment report.

2.2.1.1 Planned Response Activities

No additional on-site sampling or air monitoring activites are expected unless new reports of odors arise. For the next three to four weeks, OSC Garrison retains limited air monitoring and sampling capabilities on-island which includes a Jerome J605 Hydrogen Sulfide Analyzer with an H2S detection limit of 2 PPB, and five SUMMA canisters to be used for grab sampling if needed.

2.2.1.2 Next Steps

Assist DPNR with monitoring of temporary corrective measures to be implemented by VI WMA to prevent migration of H2S from the Barren Spot force main discharge pipe at Curriculum Center to the High School and other nearby structures.

2.2.2 Issues

Assist the VI Department of Public Works and VI Waste Management Authority (WMA) with the preparation and approval of a grant amendment for the Bethlehem Manhole Rehabilitation including the potential Barron Spot Lift Station air/chemical injection. EPA is waiting for a revised scope of work and letter from DPW on this to proceed with the grant amendment, while EPA prepares the CATEX NEPA approval document.

2.3 Logistics Section

Close coordination with DPNR, Government House and US Customs was needed to ensure the timely delivery of government supplies, monitoring and sampling equipment needed for the investigation.

Make arrangements via Weston for rental of a second ODALOG to be placed in the transition manhole at Curriculum Center once VIWMA temporary H2S mitigation measures are complete. The ODALOG will be used to monitor H2S concentrations in the manhole over the longer term. The rental period should cover through at least part of the new school year.

2.4 Finance Section

2.4.1 Narrative

Costs associated with this investigation are being tabulated and will be incorporated in POLREP 2.

2.5 Other Command Staff

2.5.1 Safety Officer

OSC Donofrio is the acting Safety Officer for EPA activites at the site.

2.5.2 Liaison Officer

OSC Garrison is performing the Community Involvement Coordinator and Liaison activities for the site.

2.5.3 Information Officer

THe EPA Public Information Officer assigned to the Site is Elias Rodriguez from the Public Affairs Division, rodriguez.elias@epa.gov (212) 637

3. Participating Entities

3.1 Unified Command

Government House
VI Territorial Emercency Management Agency (VITEMA)
VI Department of Planning and Natural Resources (DPNR) and the Division of Enviromental Protection (DEP)
23rd Civil Support Team VI National Guard
EPA and the Environmental Response Team (ERT) with contractor support (SERAS)

3.2 Cooperating Agencies

VI Waste Management Authorities (WMA)
VI Department of Education (DOE)
VI Department of Public Works

4. Personnel On Site

Total personnel on site varied daily with slots filled as needed to meet the planned activity:

DPNR (depending on the day's activity) 6 - 12
23rd CST (depending on the day's activity) 8 - 10
EPA 3
ERT 1
SERAS 2-3

5. Definition of Terms

No information available at this time.

6. Additional sources of information

6.1 Internet location of additional information/report

See the document section of the EPA OSC site at http://www.epaosc.org/CHSSTXAI

6.2 Reporting Schedule

This Initial POLREP is included the reporting period from March 18 - April 5, 2014.
A Final POLREPwill be finalized and distributed when the investigation is finished.

7. Situational Reference Materials

Reference materials have been posted to the document section of the EPA OSC site at http://www.epaosc.org/CHSSTXAI